

# **CTIP STUDY PROBLEM STATEMENT**

## **Request for Funding**

### **FY 2001**

**FHWA Strategic Goal Area:** Corporate Management Strategies

**Project Title:** Continuing Education for FHWA Field Engineers in Digital Format

**Background:** The key to any successful project is access to timely knowledge in user-friendly formats. Effective use of the construction season requires most field project engineering personnel to be in remote sites away from office-based continuing education opportunities. Present formats for distance delivery do not suit the rigors of remote sites, e.g., visual technologies such as VHS videos require expensive equipment which is bulky and prone to transportation damage. The advancing digital market suggests new distance learning technologies be considered to meet these needs for continuing education.

**Objectives:** (Include expected output, implementation, and estimated benefits.) Moving entirely to a digital format for information dissemination makes use of laptop portables and removes the obstacles of remote location. Both CD and emerging DVD formats bring on-line another component of the digital information revolution. Most technologies to complete this change exist, and CDs are becoming more reasonable in cost. Most laptop portable PCs have reached hard drive capacities and speeds to store and present vast amounts of data including full animation video, course notes, photographs, and commentary. In Module 1, the Construction Engineering Training Validation, field engineering personnel are issued 2 topics on multiple CDs, and realize the following benefits:

- View the selected CD at their most convenient time on site, print inspection standard forms, and *immediately* apply the knowledge.

- Access the manual by e-mail attachment when convenient.

- Replay the CD as necessary, focusing on relevant portions.

- Small compact and highly portable media format.

- Provide structured e-mail feedback for the assessment of this technology.

- Begin to create a digital library of continuing education tools in a single, fully compatible format.

By completion of the feasibility report, Module 2, and user feedback from Module 1, users have the following additional benefits:

- Able to make construction project education decisions with respect to the CD format or advancing to the DVD format.

- Able to prepare budget requests and begin hardware purchases to support chosen education and training format.

**Status:** (Describe the state-of-the-practice and ongoing efforts.) The Oregon Center for Advanced Technology Education (OCATE) is a division of the Chancellor's office of the Oregon University System. OCATE is the hub of all engineering distance learning throughout Oregon and one of the members of the Oregon College of Engineering and Computer Science (OCECS). The Oregon Center for Advanced Technology Education (OCATE) will secure new digital hardware and

software to complete Module 1.

**Expected Products and Milestones by Fiscal Year:** (Include description of New Initiatives and Ongoing Research.) This proposal addresses two well defined requirements to advance digital training. First, the creation of training in digital format for easy access in the field. Second, the development of information adequate to make strategic decisions regarding the migration to Digital Video Disc (DVD) in continuing education. Both are addressed in the modules below.

Module 1 proposes to develop up to 1 hour of training material for up to 400 construction personnel on two topics, one technical and one a human resource issue such as discrimination or site safety. Both topics will be contained on up to 4 CDs. The CDs will contain a mix of video, commentary, photographs and printable forms. Accompanying instructions for the material and additional sources of technical help will be contained in a manual available by e-mail attachment from FHWA, WFLHD. Following the 2001 construction season, a sample of 200 personnel will be asked to respond to an e-mailed evaluation form to critique the technical CD quality and the learning methodology.

Module 2 is proposed as a feasibility study to be done in connection with Module 1. It includes a review of the rapidly evolving digital education landscape to assist FHWA in determining feasibility of a move to DVD. DVDs have much larger storage capacity, higher quality and may become the industry standard. Significant resource allocation decisions will need to be made to impact training and media selection both short and long term. This study could include DVD production and costs, some licensing and copyright issues and cost of compatible hardware. Inclusion of the Module 1 feedback is expected.

**Duration:** FY 2001 - Module 1 - (1 year) to develop and deliver the initial 2 topics on multiple CDs for the 2002 construction season.

FY 2002 - Module 2 (1-2 years) to commence the digital CD versus DVD training tools market review, investment cost, and strategies to move to full DVD formats.

**Estimated Cost by Fiscal Year:** FY 2001

Hardware and software acquisition and upgrades	7,500
Content and curriculum development	15,000
CD production	48,000
Project management & reports	23,000
Mastering, copying, packaging of CDs	6,500
Total:	\$100,000

OCATE resources:

Technical support staff (in-kind)	15,000
Equipment upgrades (cash)	15,000
Facility usage (in-kind)	2,500
(Not CTIP)	
Total:	\$32,500

FY 2002:

Feasibility Study	
evaluate CD versus DVD formats	\$50,000

**Suggested Organization Method:** The Oregon Center for Advanced Technology Education (OCATE) is the primary delivery organization. OCATE will work with one FLH Division (WFLHD) which will organize a steering group made up of potential users.

**Submitted:**

**Agency/Division:** Western Federal Lands Highway Division

**Name:** Cal Frobeg

**Phone:** 360-696-7648

**Date:** 11 January 2001

**Champion:**

**Name:** Richard Barrows

**Phone:** 360-696-7704

**Funding Source:** (Check one.)

- ☐ Agency Fund
- ☐ General Fund

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION - VANCOUVER, WA**

**DETERMINATION AND FINDINGS**

**Findings**

The proposed Interagency, Reimbursable Agreement with the Portland State University, in Portland, Oregon, is to provide continuing education modules showcasing digital distance learning methods.

1. Reimbursable Agreement Number 01-A-17-0088
2. It is ☐ more economical ☒ more convenient to obtain the required supplies or services through the proposed Interagency Reimbursable Agreement, rather than by direct contract with a commercial concern because: ☒ The Agency has demonstrated that has greater knowledge with respect to the subject work: ☒ The Agency has indicated that it has resources available to begin this work in a timely manner: ☒ The Agency personnel performing the work are locally located resulting in much reduced travel and subsistence costs, and therefore, total costs are expected to be less than if performed by outside firms.
3. ☐ Other: \_\_\_\_\_
4. Legal authority for the acquisition otherwise exists.
5. The action does not conflict with any other agency's authority or responsibility.

*Note: [If the servicing agency must do a contract action, see FAR 17.503(b) for required statement]*

*Note: [If the servicing agency operates a commercial or industrial activity using Govt. personnel, see TAM 1217.503(c) and Appendix A for required statement]*

Prepared by:

\_\_\_\_\_  
Date:

Technology Deployment Engineer

**Determination**

Based upon these findings, I hereby determine that it is in the Government's interest to obtain the required supplies/services as authorized by the Economy Act (31 U.S.C. 1535) if from another Federal agency, or as authorized by Title 23 U.S.C. if by a State or local agency.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Contracting Officer

## Scope of Work

### Continuing Education for FHWA Field Engineers in Digital Format

#### Background:

Most field project engineering personnel are in remote sites away from the office. Opportunities for continuing education are limited even with present distance delivery systems like VHS video or satellite. The advancing digital market suggests new distance learning technologies be considered to meet these needs for continuing education.

#### Objective:

Moving entirely to a digital format for information dissemination makes use of laptop portables and removes the obstacles for remote location. Both CD and DVD formats bring on-line another component, at a reasonable cost, readily usable on modern hardware at acceptable speeds and capacity. In Module 1, the Construction Engineering Training Validation, field personnel are issued two topics on multiple CDs to review at their convenience on site, print appropriate forms and apply the knowledge. Replay is possible as necessary for focus and e-mail is close at hand for assistance. Module 2 is a feasibility report and user feedback on the results of Module 1. Decisions can be made about advancing to the DVD format based on the feasibility report.

#### Tasks:

1. Develop two courses, of up to one and one-half hours each, of training material for up to 50 construction personnel on two topics. One topic is to address the National Marine Fisheries Service requirements for protecting fish and fish habitat during construction. This topic is to be coordinated with Ms. Sharon Brown, Environmental Engineer in the Idaho/Montana Design Team at the Western Federal Lands Highway Division. Ms. Brown can be reached at 360-696-7776. The second topic is to address the installation and testing of ground anchors. This topic is to be coordinated with Mr. Rich Barrows, Construction Quality Assurance Engineer at the Western Federal Lands Highway Division. Mr. Barrows can be reached at 360-696-7704.
2. Both topics will be on CD, up to four each, with a mix of video, commentary, photographs, and printable forms.
3. Prepare an accompanying instruction manual, in electronic format, for the topic material and additional sources for technical help.
4. Sample up to 25 personnel during the construction season to evaluate the technical quality and the learning methodology. Use an e-mail evaluation form for the sample to be selected by the WLFHD Construction Q/A Engineer.

5. Review the evolving digital education landscape and prepare a feasibility study report on the possibility of moving to Digital Video Disc (DVD) with much larger storage capacity, and higher quality.
6. Prepare a final report documenting the method, cost, and experience from the evaluation results for the two topics and the feasibility study about moving to DVD.

Costs:

Hardware and software acquisition and upgrade	\$ 7,500
Content and curriculum development	\$ 15,000
CD production	\$ 48,000
Project management & reports	\$ 23,000
Mastering, copying, and packaging of CDs	<u>\$ 6,500</u>
FY 2001 Subtotal	\$100,000

OCATE resources:

Technical support staff and facilities (in-kind services)	\$ 5,000
Subtotal OCATE	\$ 5,000

Project TOTAL	\$105,000
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File:

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DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
REIMBURSABLE AGREEMENT

AGREEMENT  
No.01-A-17-0088

PARTIES TO THE AGREEMENT

a. REIMBURSING ORGANIZATION  
Federal Highway Administration  
Western Federal Lands Highway Division  
610 East Fifth Street  
Vancouver, WA 98661-3801

b. ORGANIZATION TO BE REIMBURSED  
Portland State University  
PO Box 751  
Portland, OR 97207-0751

APPROPRIATION CHARGEABLE  
X411-050-140-411050-175300

APPROPRIATION REIMBURSED

EFFECTIVE DATE

COST (Estimated)

September 1, 2001

a. FY: 2001

b. Amount:\$100,000

SUMMARY

1. This agreement is entered into under authority of Title 23, USC Section 204 by the State of Oregon acting by and through the Board of Higher Education on behalf of Portland State University, hereinafter called "PSU" and the Western Federal Lands Highway Division, hereinafter called "WFLHD".
2. The PSU shall perform the Statement of Work attached.
3. The WFLHD shall reimburse the PSU for all eligible costs incurred under the terms of this agreement. The total estimated cost is \$105,000, of which PSU will participate with \$5,000 of staff time, equipment upgrades and equipment use, and WFLHD shall participate with \$100,000 in FY 2001.
4. The WFLHD's Contracting Officer's Technical Representative (COTR) is Rich Barrows.

AUTHORIZED APPROVALS

a. FOR REIMBURSING ORGANIZATION

b. FOR ORGANIZATION TO BE  
REIMBURSED

SIGNATURE

DATE

SIGNATURE

DATE

TITLE

Contracting Officer  
Western Federal Lands Highway Division

TITLE

## FINANCIAL ADDENDUM

Billing Office: Western Federal Lands Highway Division  
Federal Highway Administration

Bill to Address: 610 East Fifth Street  
Vancouver, WA 98661

COTR: Name: Rich Barrows Routing Symbol: HCO-17.2  
Title: Construction Quality Assurance Engineer  
Telephone: 360-696-7704

Accounting Classification: X411-050-140-411050-175300

Project Beginning Date: September 10, 2001 Ending Date: September 30, 2002

Each specific item of goods or services to be furnished under the terms of this agreement are as follows:

See attached Statement of Work

### IDENTIFY THE FOLLOWING:

Billable Charges: Material and Labor costs

Method of Computation of Charges: Actual costs

Estimated Cost: \$105,000

Billing Period(s) \_\_\_\_\_ (Monthly)  X  (Quarterly)  
\_\_\_\_\_ (Other) Specify:

WFLHD financial contact: Anne Henderson 360-696-7757

Documentation required by the Reimbursing Agency as a condition of payment is as follows:

Tax ID No. for Agency to be reimbursed: 93-6001786

Billings shall be submitted to WFLHD by delivery to Rich Barrows, Construction Quality Assurance Engineer, Western Federal Lands Highway Division, 610 East Fifth Street, Vancouver, WA 98661-3801, including a certified statement of costs incurred, indicated as "Partial" or "Final" Billing, itemized as: (1) Salaries and Wages, (2) Transportation Cost, (3) Equipment Charges, (4) Materials, and (5) Other Items including overhead.





U.S. Department  
of Transportation

Federal Highway  
Administration

WESTERN FEDERAL LANDS HIGHWAY DIVISION  
610 EAST FIFTH STREET  
VANCOUVER, WA 98661-3893  
(360) 696-7700 FAX: (360) 696-7846

May 22, 2005

Refer to: HTS-17.1  
File: 741 & 729#1  
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Ms. Leah Keller-Transburg  
Contract Specialist, Office of Research and Sponsored Projects  
Portland State University, PO Box 751  
Portland, Oregon 97207-0751

Dear Ms. Keller-Transburg:

Enclosed are two signed originals of Reimbursable Agreement No. 01-A-17-0088, for development of two training modules using a digital format for distance learning. The modules will be for training our field engineer pool under the leadership of Mr. Richard Barrows.

If you concur with the terms and conditions of the agreement, **please sign, date, and return one original to our office to the attention of Kathy McCormmach.** The other original is for your records.

The enactment of the Debt Collection Improvement Act of 1996 requires all federal payments to be made electronically. Payments will be made via direct deposit by electronic funds transfer for this agreement and all subsequent agreements. Please complete the enclosed "Payment Information Form" and return to Federal Highway Administration, Western Federal Lands Highway Division, (WFLHD) so payment can be processed accordingly. If you have any questions regarding billing information, please call Anne Henderson at (360) 696-7757.

If you have other questions regarding this agreement please call Cal Frobig, at (360) 696-7648, or Rich Barrows at 360-696-7704.

Sincerely yours,

Robert B. Lale III  
Program Planning and Administration Engineer

Enclosures:  
Reimbursable Agreement 01-A-17-0088 (2 originals)  
Payment Information Form

cc: Kathy McCormmach, Program Coordination, WFLHD  
Anne Henderson, Finance, WFLHD  
Richard Barrows, Construction Quality Assurance Engineer, WFLHD  
Ron. Geason, Oregon Center for Advanced Technology Education